Claims

What is claimed is:

1. A method of forming a mixture from two elements at least one of which is a liquid, comprising the steps of:

introducing a first element into a vessel at a flow rate;

introducing a second element into the vessel at a flow rate, causing the two elements to mix and form a mixture in the vessel;

discharging the mixture from the vessel;

controlling the flow rate of one of the two elements to maintain a constant level of the mixture in the vessel; and

controlling the flow rate of the other of the two elements to maintain a predetermined ratio of the flow rate of the latter element and the flow rate of the mixture discharged from the vessel.

2. The method of claim 1 wherein one of the two elements is water.

3. The method of claim 2 wherein the other element is cement.

4. The method of claim 1 further comprising the step of metering the flow of the two elements into the vessel and the mixture discharged from the vessel using meters.

5. The method of claim 4 further comprising the step of measuring the level of the mixture in the vessel.

6. The method of claim 5 wherein the step of controlling comprises:

providing valves in the flow path of the two elements and the mixture discharged from the vessel; and

controlling the opening of the valves.

7. The method of claim 6 wherein the step of controlling comprises connecting a control unit to the meters for controlling the opening of the valves in response to the metering and the measuring.

8. A system of forming a mixture from two elements at least one of which is a liquid, comprising:

a vessel into which the two elements are introduced and mixed to form a mixture, the vessel having an outlet for discharging the mixture from the vessel;

a valve for controlling the flow rate of one of the two elements to maintain a constant level of the mixture in the vessel; and

a valve for controlling the flow rate of the other of the two element to maintain a predetermined ratio of the flow rate of the latter element and the flow rate of the mixture discharged from the vessel.

9. The system of claim 8 further comprising at least one meter for metering the flow of the two elements into the vessel and the mixture discharged from the vessel.

10. The system of claim 9 further comprising a device for measuring the level of the mixture in the vessel.

11. The system of claim 10 further comprising a control unit connected to the at least one meter, the device, and the valves for controlling the opening of the valves, and therefore the flow rates of the two elements and the mixture discharged from the vessel, in response to the metering and the measuring.

12. A system of forming a mixture from two elements at least one of which is a liquid, comprising:

a mixing head for receiving a first element at a flow rate and a second element at a flow rate;

a vessel into which the two elements are discharged from the mixing head and mixed to form a mixture, the vessel having an outlet for discharging the mixture from the vessel at a flow rate;

valve means for controlling the flow rates of the two elements and the mixture discharged from the vessel;

flow meter means for metering the flow rates of the first element and the mixture discharged from the vessel;

level detector means for measuring the level of the mixture in the vessel; and

control means connected to the valve means, the flow meter means, and the level detector means;

wherein the control means receives signals from the flow meter means and the level detector means, and in response thereto, sends signals to the valve means to control the flow rate of the second element to maintain a constant level of the mixture in the vessel, and to control the flow rates of the first element and the discharged mixture to maintain a predetermined ratio thereof.

13. The system of claim 12 wherein the vessel comprises:

a first portion;

a second portion; and

a partition separating the first portion from the second portion;

wherein the two elements are discharged from the mixing head into the first portion, wherein the two elements are mixed to form the mixture in the first portion, wherein the mixture flows by gravity from the first portion into the second portion, and wherein the mixture is discharged from the outlet located in the second portion.

14. The system of claim 13 wherein the first element is water and the second element is cement.

15. The system of claim 14 wherein the valve means controls the flow rate of the cement to maintain a constant level of the mixture in the second portion.

16. A system of forming a mixture from two elements at least one of which is a liquid, comprising:

a mixing head for receiving a first element at a flow rate and a second element at a flow rate;

a vessel into which the two elements are discharged from the mixing head and mixed to form a mixture, the vessel having an outlet for discharging the mixture from the vessel at a flow rate;

a plurality of valves for controlling the flow rates of the two elements and the mixture discharged from the vessel;

a plurality of flow meters for metering the flow rates of the first element and the mixture discharged from the vessel;

a level detector for measuring the level of the mixture in the vessel; and

a control unit connected to the valves, the flow meters, and the level detector;

wherein the control unit receives signals from the flow meters and the level detector, and in response thereto, sends signals to the valves to control the flow rate of the second element to maintain a constant level of the mixture in the vessel, and to control the flow rates of the first element and the discharged mixture to maintain a predetermined ratio thereof.

17. The system of claim 16 wherein the vessel comprises:

a first portion;

a second portion; and

a partition separating the first portion from the second portion;

wherein the two elements are discharged from the mixing head into the first portion, wherein the two elements are mixed to form the mixture in the first portion, wherein the mixture flows by gravity from the first portion into the second portion, and wherein the mixture is discharged from the outlet located in the second portion.

18. The system of claim 17 wherein the first element is water and the second element is cement.

19. The system of claim 18 wherein one of the valves controls the flow rate of the cement to maintain a constant level of the mixture in the second portion.